



## OUTSTANDING QUALITIES


- ◆ RESISTANCE TO TOMATO CURLY STUNT AND ROOT-KNOT
- ◆ HIGH FRUIT QUALITY
- ◆ UNIFORM GREEN SHOULDER
- ◆ GOOD LEAF COVER AND VIGOUR

**Esty** is a locally bred indeterminate salad tomato with high fruit quality and very good shelf life. **Esty's** uniform fruit size and very good disease package makes it a great all-round tomato. **Esty** has high resistance to Verticillium wilt race 1 (Vd: 1), Fusarium wilt races 1 and 2 (Fol: 1 - 2), Tomato mosaic (ToMV) and Leaf mold races 1 - 5 (Ff: 1 - 5) (ex Cf) as well as intermediate resistance to Tomato curly stunt (ToCSV) and Tomato yellow leaf curl (TYLCV). The vigour of the variety tends to make it less susceptible to common leaf diseases and also makes the plants very efficient in the uptake of nutrients. **Esty** can be grown under protection and in the open field due to its bigger fruit size and good fruit set.

## SPECIAL VARIETAL REQUIREMENTS

- Contact your area representative for more information

| CHARACTERISTIC*               | ESTY  |
|-------------------------------|---|
| KIND                          | Indeterminate F1 hybrid tomato ( <i>Lycopersicon esculentum</i> L.)   |
| PRODUCTION TYPE               | Under protection and open field   |
| FIRMNESS                      | Very good   |
| MATURITY                      | Medium  |
| PLANT VIGOUR                  | Very good   |
| SEASON                        | Year-round production in frost-free areas   |
| FRUIT WEIGHT                  | 160 - 220 g   |
| FRUIT SHAPE                   | Deep oblate   |
| PEDUNCLE                      | Jointed   |
| ATTACHMENT POINT              | Small, neat   |
| SHOULDER                      | Smooth to slightly ribbed   |
| SHOULDER COLOUR               | Uniform   |
| COLOUR                        | Internal: very good<br>External: very good  |
| FLAVOUR                       | Good  |
| UNIFORMITY                    | Excellent   |
| LEAF COVER                    | Medium dense  |
| DISEASE REACTION (SCIENTIFIC) | <b>High resistance:</b> <i>Verticillium dahliae</i> race 1 (Vd: 1), <i>Fusarium oxysporum</i> f.sp <i>lycopersici</i> races 1 and 2 (Fol: 1 - 2), <i>Meloidogyne incognita</i> (Mi)✧, <i>Meloidogyne javanica</i> (Mj)✧ and <i>Tomato mosaic virus</i> (ToMV) and <i>Fulvia fulva</i> (ex <i>Cladesporium fulvum</i> ) races 1 - 5 (Ff: 1 - 5) (ex Cf)<br>✧ <b>Nematode resistance can break down when soil temperatures are above 32°C</b><br><b>Intermediate resistance:</b> <i>Tomato curly stunt virus</i> (ToCSV) and <i>Tomato yellow leaf curl virus</i> (TYLCV) |
| MARKETS / END USE             | Fresh market and pre-pack   |
| POPULATION GUIDE              | 20 000 - 24 000 final stand per ha for production under protection<br>10 000 - 14 000 final stand per ha for open field   |
| SPECIAL FEATURES              | Strong vigour, high quality fruit, resistant to Tomato curly stunt virus  |

\* Characteristics given are affected by production methods such as soil type, nutrition, planting population, planting date and climatic conditions. Please read disclaimer.  
 WARNING: VARIETY PROTECTED UNDER PLANT BREEDERS RIGHTS. UNAUTHORIZED MULTIPLICATION AND/OR MARKETING OF SEED PROHIBITED

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**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure (HR = High resistance, IR = Intermediate resistance).

\* **Experimental:** This variety does not appear on the current South African Variety list, but has been submitted for registration.

**Recent version:** Kindly contact Sakata or Area Representative for the most recent version of this Technical Bulletin.



## GENERAL TIPS FOR TOMATO PRODUCTION

### Climatic requirements

Tomatoes can grow at a wide range of temperatures but for optimum growth, tomatoes prefer temperatures between 10°C (minimum) and 30°C (maximum). The temperature requirements for the different growth stages are given in the table below. Tomatoes do not tolerate frost or waterlogged conditions and these should be avoided at all costs. The most sensitive stages for water and temperature stress are directly after transplanting, during the flowering stage and during the fruit development stages. Water stress during these stages of tomato development will reduce yield and quality.

| Developmental stage       | Temperature (°C) |       |     |
|---------------------------|------------------|-------|-----|
|                           | Min              | Opt   | Max |
| Germination               | 11               | 16-29 | 34  |
| Vegetative growth         | 18               | 21-24 | 32  |
| Fruit set (night)         | 10               | 14-17 | 20  |
| Fruit set (day)           | 18               | 19-24 | 30  |
| Red colour development    | 10               | 20-24 | 30  |
| Yellow colour development | 10               | 21-32 | 40  |
| Chilling damage           |                  | < 6   |     |
| Frost damage              |                  | < 1   |     |
| Lethal temperature        |                  | < -2  |     |

### Soil requirements

In South Africa, tomatoes are cultivated on different soil types, from heavy clay to light sandy soil and sandy peat. Tomatoes seem to prefer well-drained sandy soils. Good moisture-holding capacity with good drainage is important. Tomatoes grow well at a wide pH range from 5.5 - 7.5 but are sensitive to acid soils and if the pH (H<sub>2</sub>O) is lower than 5.5, additional lime should be applied. The lime should be added 4 - 6 weeks before planting.

Soil preparation depends on the soil conditions and the climatic conditions under which the crop is to be cultivated. Tomatoes are very seldom direct-seeded. Seedlings are normally produced by commercial seedling growers and then transplanted.

Raised beds are ideal for tomato production. It helps prevent damage from soil compaction and flooding. Raised beds also improve airflow around the plant roots resulting in reduced disease incidence. Before beds are made, the soil should be properly worked to a depth of 40 cm to enhance aeration as well as water penetration and drainage.

### Early blight (*Alternaria solani*)

Vegetables affected by this disease are tomato, potato and eggplant. Uncontrolled, the disease may cause severe defoliation, resulting in reduced fruit number and size.

#### Symptoms

This pathogen affects the plants foliar parts (yellowing that later turns brown and the leaf drops from the plant) as well as the stem and fruit. Brown spots develop on the leaves and fruit close to the calyx attachment and lesions occur on the stems.

#### Conditions favourable for disease development

Mild temperatures between 24 – 29°C and humid conditions. For the spores to germinate free standing moisture is required, the spores are spread by air, irrigation water and heavy dew. The spores survive in soil, seed and plant material

#### Prevention and control

- Control humidity and wetting of the leaves
- Use pathogen free seed and seedlings
- Spray with a fungicide at regular intervals

### Disease resistance definition

**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure. Two levels of resistance are defined:

**High/standard resistance (HR):** plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

**Moderate/intermediate resistance (IR):** plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to resistant varieties. Moderately/intermediately resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar environmental conditions and/or pest or pathogen pressure.

**Susceptibility (S):** is the inability of a plant variety to restrict the growth and development of a specified pest or pathogen.

**Tolerance (T):** is the ability of a plant variety to endure **abiotic stress** without serious consequences for growth, appearance and yield. Vegetable companies will continue to use tolerance for abiotic stress.

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